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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,981	04/25/2001	William Earl Sumner	10010871-1	5548

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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

YIGDALL, MICHAEL J

ART UNIT	PAPER NUMBER
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2192

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,981

Applicant(s)

SUMNER ET AL.

Examiner

Michael J. Yigdall

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 2, 2005 has been entered. Claims 1-28 are pending.

### ***Response to Arguments***

2. Applicant's arguments have been fully considered but they are not persuasive.

Applicant contends that the teachings of the Plum reference do not teach or allude to a parser having one or more predetermined code modification portions therein, each being operable to specify a corresponding variable instrumentation code portion, as currently claimed (Applicant's remarks, page 18). Applicant contends that the "test" type instrument code and "block" type instrument code of the Plum reference are solely and merely based on whether the source program chunk is a branch chunk or a block chunk, and therefore are not variably responsive to a corresponding predetermined code modification portion provided in the parser itself (Applicant's remarks, pages 18-19).

However, the instrument code of Plum is indeed variably responsive to a corresponding predetermined code modification portion provided in the parser itself, in the sense that the "test" type instrument code corresponds to a predetermined code modification portion associated with branch chunks, and the "block" type instrument code corresponds to a predetermined code

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modification portion associated with block chucks (see, for example, column 7, lines 45-65).

The instrumenter and the parser are interrelated (see, for example, column 7, lines 1-9).

Moreover, the instrument code of Plum is “variable” in the sense that it varies according to the line number at which it is inserted in the source code (see, for example, column 11, lines 35-41 and column 12, lines 15-20).

Although Applicant suggests that the instrument code of Plum is statically associated or fixed (Applicant’s remarks, page 18), the claims too, in fact, call for “predetermined” code modification portions. Furthermore, specifying a corresponding “variable” instrumentation code portion, as recited by the plain language of the claims, does not necessarily imply “specifying, in a dynamic manner, a variety of corresponding instrumentation code portions,” as Applicant suggests (Applicant’s remarks, page 21).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 12, 13, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,758,061 to Plum (art of record, “Plum”).

With respect to claim 1 (currently amended), Plum discloses a method of modifying a source code portion associated with a computer program (see, for example, column 5, line 39-44, which shows instrumenting the source code of a computer program), comprising the steps of:

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(a) scanning said source code portion using a parser to recognize at least one select syntax structure therein (see, for example, column 7, lines 1-9, which shows a parser for parsing the source code and analyzing its syntax, and column 9, lines 33-40, which further shows identifying structures in the code), said parser having one or more predetermined code modification portions therein, each being operable to specify a corresponding variable instrumentation code portion (see, for example, column 7, lines 45-65, which further shows predetermined code modification portions associated with different “chunks” or syntax structures, operable to specify corresponding “test” or “block” instrumentation code, and see, for example, column 11, lines 35-41 and column 12, lines 15-20, which shows that the instrumentation code is variable based on the location at which it is inserted); and

(b) inserting a variable instrumentation code portion into said source code portion at a location associated with a particular one of said at least one select syntax structure (see, for example, column 7, lines 15-21 and 26-36, which shows inserting instrumentation code at locations associated with particular structures), said variable instrumentation code portion being specified responsive to a corresponding predetermined code modification portion provided in said parser (see, for example, column 7, lines 45-65, which further shows that the instrumentation code is inserted by its corresponding code modification portion).

With respect to claim 2 (previously presented), Plum further discloses the limitation wherein said parser comprises a recursive-descent parser (see, for example, column 9, lines 50-66, which shows using a recursive-descent parser), and further wherein said computer program is a program selected from the group consisting of an operating system kernel, an application

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program and a software utility program (see, for example, column 5, lines 25-32, which shows operating on the source code of a computer program).

With respect to claim 12 (currently amended), the recited system is analogous to the method recited in claim 1 (see the rejection of claim 1 above). Note that Plum further discloses such a system (see, for example, column 5, lines 12-24).

With respect to claim 13 (previously presented), the recited limitations are analogous to the limitations recited in claim 2 (see the rejection of claim 2 above).

With respect to claim 21 (currently amended), the recited computer-readable medium is analogous to the method recited in claim 1 (see the rejection of claim 1 above). Note that Plum further discloses such a computer-readable medium (see, for example, column 5, lines 12-24).

With respect to claim 22 (previously presented), the recited limitations are analogous to the limitations recited in claim 2 (see the rejection of claim 2 above).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 3, 4, 7, 9, 10, 14, 16, 18, 19, 23, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plum, as applied to claims 2, 13 and 22 above, respectively, in view of U.S. Pat. No. 6,311,327 to O'Brien et al. (art of record, "O'Brien").

With respect to claim 3 (previously presented), although Plum discloses additional processing performed prior to instrumenting the source code (see, for example, column 10, lines 42-46), Plum does not expressly disclose pre-processing said source code portion.

However, O'Brien discloses a method for parsing and instrumenting source code (see, for example, column 3, line 48 to column 4, line 4) that comprises a pre-processor for removing information from the source code (see, for example, column 11, line 59 to column 12, line 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the pre-processing step taught by O'Brien to the method of Plum, for the purpose of removing information from the source code prior to instrumentation.

With respect to claim 4 (previously presented), Plum in view of O'Brien further discloses the limitation wherein said pre-processing is operable to remove macro code portions from said source code portion (see, for example, Plum, column 10, lines 34-46, which shows that the additional processing performed prior to instrumenting the source code relates to inline functions that are to be expanded, i.e. macros; also see, for example, O'Brien, column 11, line 59 to column 12, line 5, which shows that the information removed in the pre-processing step includes comments, which may comprise macro definitions).

With respect to claim 7 (currently amended), although Plum discloses using the instrumentation code to determine the portions of the source code that have been reached during

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execution (see, for example, column 13, lines 15-40), Plum does not expressly disclose the limitation wherein said variable instrumentation code portion is operable to count accesses to a particular function subroutine of said computer program.

However, O'Brien discloses a method for parsing and instrumenting source code (see, for example, column 3, line 48 to column 4, line 4) that is operable to count accesses to particular functions, for the purpose of analyzing performance (see, for example, column 20, lines 23-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the method of Plum to count accesses to particular functions, as taught by O'Brien, for the purpose of enabling performance analysis.

With respect to claim 9 (currently amended), although Plum discloses using the instrumentation code to determine the portions of the source code that have been reached during execution (see, for example, column 13, lines 15-40), Plum does not expressly disclose the limitation wherein said variable instrumentation code portion is operable to monitor frequency of function calls from a plurality of select locations in said computer program.

However, O'Brien discloses a method for parsing and instrumenting source code (see, for example, column 3, line 48 to column 4, line 4) that is operable to monitor the number of function calls and the average execution time of each function from a plurality of locations in the program, for the purpose of analyzing performance (see, for example, column 20, lines 23-39). The frequency of function calls may be determined based on the number of calls and the execution time.



It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the method of Plum to monitor the frequency of function calls, as taught by O'Brien, for the purpose of enabling performance analysis.

With respect to claim 10 (currently amended), although Plum discloses using the instrumentation code to determine the portions of the source code that have been reached during execution (see, for example, column 13, lines 15-40), Plum does not expressly disclose the limitation wherein said variable instrumentation code portion is operable to monitor frequency of use of a plurality of code paths in said computer program.

However, O'Brien discloses a method for parsing and instrumenting source code (see, for example, column 3, line 48 to column 4, line 4) that is operable to monitor branches, entry points and exit points, i.e. code paths, with associated time stamps (see, for example, column 21, lines 26-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the method of Plum to monitor the frequency of use of code paths, as taught by O'Brien, for the purpose of enabling performance analysis.

With respect to claim 14 (original), the recited limitations are analogous to the limitations recited in claims 3 and 4 (see the rejections of claims 3 and 4 above).

With respect to claim 16 (currently amended), the recited limitations are analogous to the limitations recited in claim 7 (see the rejection of claim 7 above).

With respect to claim 18 (currently amended), the recited limitations are analogous to the limitations recited in claim 9 (see the rejection of claim 9 above).

With respect to claim 19 (currently amended), the recited limitations are analogous to the limitations recited in claim 10 (see the rejection of claim 10 above).

With respect to claim 23 (currently amended), the recited limitations are analogous to the limitations recited in claim 10 (see the rejection of claim 10 above).

With respect to claim 26 (currently amended), the recited limitations are analogous to the limitations recited in claim 7 (see the rejection of claim 7 above).

With respect to claim 28 (currently amended), the recited limitations are analogous to the limitations recited in claim 9 (see the rejection of claim 9 above).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plum, as applied to claim 2 above, in view of U.S. Pat. No. 5,909,578 to Buzbee (art of record, "Buzbee").

With respect to claim 5 (original), although Plum discloses operating on the source code of a computer program (see, for example, column 5, lines 25-38), which may comprise an operating system kernel, Plum does not expressly disclose the limitation wherein said operating system kernel comprises HP-UX Operating System kernel.

However, Buzbee discloses a method for instrumenting source code to obtain profiling information (see, for example, column 5, lines 1-14), wherein the operating system kernel is the HP-UX OS (see, for example, column 3, lines 30-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the method of Plum with support for the HP-UX Operating System kernel, as taught by Buzbee, in order to increase its flexibility and compatibility.

8. Claims 6, 8, 15, 17, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plum, as applied to claims 2, 13 and 22 above, respectively, in view of U.S. Pat. No. 5,450,586 to Kuzara et al. (art of record, "Kuzara").

With respect to claim 6 (currently amended), although Plum discloses using the instrumentation code to determine the portions of the source code that have been reached during execution (see, for example, column 13, lines 15-40), Plum does not expressly disclose the limitation wherein said variable instrumentation code portion is operable to count accesses to a particular global variable of said computer program.

However, Kuzara discloses a method for instrumenting source code with code markers in order to analyze and debug the software (see, for example, the title and abstract), wherein the code markers may be used to count events such as variable accesses (see, for example, column 9, lines 11-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the method of Plum to count accesses to variables and global variables, as taught by Kuzara, in order to facilitate debugging.

With respect to claim 8 (currently amended), although Plum discloses using the instrumentation code to determine the portions of the source code that have been reached during execution (see, for example, column 13, lines 15-40), Plum does not expressly disclose the

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limitation wherein said instrumentation code portion is operable to count accesses to a particular global variable from a select module of said computer program.

However, Kuzara discloses a method for instrumenting source code with code markers in order to analyze and debug the software (see, for example, the title and abstract), wherein the code markers may be used to determine when execution is in a particular module and to count events such as variable accesses (see, for example, column 9, lines 11-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the method of Plum to count accesses to variables and global variables from particular modules, as taught by Kuzara, in order to facilitate debugging.

With respect to claim 15 (currently amended), the recited limitations are analogous to the limitations recited in claim 6 (see the rejection of claim 6 above).

With respect to claim 17 (currently amended), the recited limitations are analogous to the limitations recited in claim 8 (see the rejection of claim 8 above).

With respect to claim 25 (currently amended), the recited limitations are analogous to the limitations recited in claim 6 (see the rejection of claim 6 above).

With respect to claim 27 (currently amended), the recited limitations are analogous to the limitations recited in claim 8 (see the rejection of claim 8 above).

9. Claims 11, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plum, as applied to claims 2, 13 and 22 above, respectively, in view of U.S. Pat. No. 6,327,699 to Larus et al. (art of record, "Larus").

With respect to claim 11 (original), although Plum discloses an exemplary computer system having a processor, Plum does not expressly disclose the limitation wherein said operating system kernel is operable with a multiprocessor computer system.

However, Larus discloses a method for instrumenting source code to produce a trace of executed paths (see, for example, column 2, lines 10-17) that is operable with a multiprocessor computer system (see, for example, column 3, lines 45-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the method of Plum with support for a multiprocessor computer system, as taught by Larus, in order to increase its flexibility and compatibility.

With respect to claim 20 (original), the recited limitations are analogous to the limitations recited in claim 11 (see the rejection of claim 11 above).

With respect to claim 24 (original), the recited limitations are analogous to the limitations recited in claim 11 (see the rejection of claim 11 above).

### *Conclusion*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Yigdall whose telephone number is (571) 272-3707. The examiner can normally be reached on Monday through Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MY

Michael J. Yigdall  
Examiner  
Art Unit 2192

mjy



**TUAN DAM**  
**SUPERVISORY PATENT EXAMINER**